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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of:

Amendment of the Commission's
Rules to Establish New Personal
Communications Services

)
) GEN Docket No. 90-314
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)
)

**COMMENTS OF TELOCATOR, THE PERSONAL
COMMUNICATIONS INDUSTRY ASSOCIATION**

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S U M M A R Y

Telocator strongly supports the spectrum allocation and regulatory regime for Personal Communications Services created by the Commission in the *Second Report and Order*. However, as Telocator previously urged, the Commission should consider the following limited regulatory changes upon reconsideration to enhance the economic feasibility and overall utility of PCS:

- The PCS base station power limit should be raised to 1,000 Watts ERP and the mobile power limit raised to 12 Watts ERP for some units;
- The FCC should clarify that licensees are able to freely subdivide and aggregate spectrum, up to the spectrum cap;
- The rule on emissions limits should be expanded to cover both PCS to microwave and adjacent channel PCS interference;
- Industry consensus revisions to the PCS to microwave interference calculations should be adopted;
- The license area divisions should be restated independent of map systems that may carry proprietary complications;
- Aspects of the application filing rules should be clarified; and,
- The RF exposure regulations for PCS should be modified to be consistent with the text of the *Second Report and Order*.

The Commission should not, however, adopt any changes that fundamentally alter the basic spectrum allocations by creating set-asides for any purpose or preempt ongoing industry discussions relating to E-911 services.

TABLE OF CONTENTS

SUMMARY	i
I. A FEW MINOR CONSENSUS CHANGES TO THE PCS RULES ARE WARRANTED AND IN THE PUBLIC INTEREST	2
A. Maximum PCS Power Levels Should Be Increased for Base Stations and for Some Mobiles	2
B. The Commission Should Adopt the Proposal To Allow Licensees' To "Sublet" Spectrum from Other Licensees	6
C. The Out-of-Band Emissions Criteria Should Be Extended To Govern PCS Adjacent Channel Interference	7
D. The PCS-Microwave Interference Criteria Should Be Modified To Allow Greater Flexibility To Implement Industry-Derived Consensus Solutions	8
E. The PCS License Areas Should Be Restated In Terms of Counties Rather Than Relying Upon a Proprietary Map System	9
F. The Application Filing Rules Should Be Clarified	10
G. The Applicability of the Uncontrolled Environment Distinction for RF Exposure Evaluations Should Be Clarified	11
H. The "Listening" Period and Frame Time In the Unlicensed Device "Listen-Before-Talk" Protocol Should Be Increased	12
II. REQUESTED CHANGES LIMITING THE POTENTIAL FOR INDUSTRY-DERIVED SOLUTIONS SHOULD NOT BE ADOPTED	12
A. The FCC Should Reject Proposals To Dedicate PCS Spectrum for Private Uses Only	12
B. E-911 Issues Should Be Left to the Industry for Resolution In Conjunction With the States	13
III. CONCLUSION	14

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Telocator, the Personal Communications Industry Association, herewith submits its comments on the Petitions for Reconsideration of the Commission's Second Report and Order on new 2 GHz Personal Communications Services ("PCS").¹ As discussed in its own reconsideration request,² Telocator believes the *Second Report and Order* is a pivotal event for both the wireless industry and the American public, setting a sound stage for the deployment of the next generation of radio services. However, a few minor changes to the regulatory framework are needed with respect to power levels, interference standards, contents of applications, and technical requirements. In contrast, proposals to dedicate spectrum to private uses only or adopt specific enhanced 911 ("E-911") rules are unnecessary and unwarranted.

¹ Amendment of the Commission's Rules to Establish New Personal Communications Services, FCC 93-451 (rel. Oct. 22, 1993) ["*Second Report and Order*"].

² Petition for Reconsideration of Telocator, GEN Docket No. 90-314 (filed Dec. 8, 1993) ["*Telocator Petition*"].

I. A FEW MINOR CONSENSUS CHANGES TO THE PCS RULES ARE WARRANTED AND IN THE PUBLIC INTEREST

A. Maximum PCS Power Levels Should Be Increased for Base Stations and for Some Mobiles

In its recently filed petition, Telocator requested the Commission to increase maximum PCS base station transmit power levels from 62 Watts ERP to 1,000 Watts ERP.³ In view of the admittedly "relatively modest" power limits adopted by the Commission, Telocator's request was echoed by a great number of petitioners for a variety of reasons.⁴ As discussed below, these petitioners have shown that raising the base station power limit will have a number of beneficial effects without any perceivable adverse consequences.

First, the requested change will allow more economical PCS deployment.⁵ PacTel, for example, states that "a 100 watt maximum would strip PCS operators of their flexibility to provide a richer range of services in a variety of environments."⁶ Indeed, the current

³ *Telocator Petition* at 2-7.

⁴ Petition for Reconsideration of American Personal Communications at 3-8, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*APC Petition*]; Petition for Reconsideration of Ameritech at 1-2, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*Ameritech Petition*]; Petition for Reconsideration of MCI Telecommunications Corporation at 7-8, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*MCI Petition*]; Petition for Reconsideration of Motorola Inc. at 7-8, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*Motorola Petition*]; Petition for Reconsideration of Northern Telecom Inc. at 6-21, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*Northern Telecom Petition*]; Petition for Reconsideration of Pacific Bell & Nevada Bell at 2, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*PacBell Petition*]; Petition for Reconsideration of PacTel Corporation at 1-7, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*PacTel Petition*]; Petition for Reconsideration of Sprint Corporation at 14-15, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*Sprint Petition*]; Petition for Reconsideration of Time Warner Telecommunications at 13, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*Time Warner Petition*]; Petition for Reconsideration of U S West, Inc. at 2-16, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*U S West Petition*].

⁵ *Telocator Petition* at 2-7; *APC Petition* at 3-8; *MCI Petition* at 7-8; *Northern Telecom Petition* at 6-17; *PacTel Petition* at 1-4; *Sprint Petition* at 14-15; *U S West Petition* at 10-12.

⁶ *PacTel Petition* at 4.

PCS base station power limit "dramatically and unnecessarily increase[s] the number of base stations required to meet the aggressive build-out requirements of new Section 99.206 of the Commission's Rules."⁷ U S West goes as far as stating that the existing limit "is so restrictive that it threatens the economic viability of PCS systems" because in many areas where coverage will be mandated by the build out requirements, "the population is not sufficiently dense to support, either technically or economically, the construction of small, low-power, high-capacity cells."⁸

Second, petitioners, like Telocator, also pointed out that higher power limits will facilitate deployment of a variety of new, spectrum-efficient technologies.⁹ PacTel noted that the concept of "a single user per transmitter" in power determinations was "outmoded" and ill-suited to advanced, high-technology CDMA transmission systems.¹⁰ Similarly, a number of parties argued that measuring power relative to an isotropic radiator does not permit the economic deployment of efficient, new, highly directional phased array and "smart" antenna technologies.¹¹

⁷ *APC Petition* at 3.

⁸ *U S West Petition* at 3, 11.

⁹ *Telocator Petition* at 2-7; *APC Petition* at 3-8; *Northern Telecom Petition* at 6-17; *PacBell Petition* at 3-4; *PacTel Petition* at 1-4; *Sprint Petition* at 14-15; *U S West Petition* at 12-13.

¹⁰ *PacTel Petition* at 4; *see also Telocator Petition* at 2-7; *APC Petition* at 3-8; *Sprint Petition* at 14-15.

¹¹ *Telocator Petition* at 2-7; *Northern Telecom Petition* at 6-17; *PacBell Petition* at 3-4; *PacTel Petition* at 1-4; *Sprint Petition* at 14-15; *U S West Petition* at 12-13.

Third, petitioners noted that raising the permitted power limits will facilitate competition with cellular systems.¹² A number of filings provided link-budget analyses showing roughly a 7 dB propagation difference between 800 MHz cellular and 2 GHz PCS frequencies.¹³ As U S West observed, the current power limit "would place PCS licensees at a distinct disadvantage *vis-a-vis* cellular licensees because of the need to construct, maintain and operate many more cells."¹⁴ Ameritech similarly noted that "[t]he resultant cell-size constraints [imposed by the existing limits] . . . clearly affect the economics of initial and future PCS deployment."¹⁵

Petitioners seeking higher power limits also went to great lengths to dispel any suggestion that increased base station power limits would have any adverse consequences. Petitioners noted specifically that raising the base station power limit does not require commensurate increases in mobile power since "an increase in the allowable effective radiated power will not result in an unbalanced system if the increase is due to antenna gain rather than transmitter output power."¹⁶ In addition, petitioners observed that if the coordination height/power table was amended as suggested,¹⁷ existing OFS users would not

¹² *Telocator Petition* at 2-7; *APC Petition* at 3-8; *Ameritech Petition* at 2; *Northern Telecom Petition* at 6-17; *PacBell Petition* at 4; *PacTel Petition* at 5-6; *Time Warner Petition* at 13; *U S West Petition* at 7-10.

¹³ *See, e.g., APC Petition* at 5; *U S West Petition* at 14.

¹⁴ *U S West Petition* at 8-9.

¹⁵ *Ameritech Petition* at 2.

¹⁶ *Motorola Petition* at 7-8. *See also Telocator Petition* at 2-7; *APC Petition* at 3-8; *Northern Telecom Petition* at 17-21.

¹⁷ *APC Petition* at 8-10; *Northern Telecom Petition* at 17-21; *Time Warner Petition* at 13.

be subject to any increased potential for interference.¹⁸ Simply stated, "PCS power levels should be determined independent of the potential impact on microwave licensees as microwave licensees will be protected in any event."¹⁹ Furthermore, since potential RF exposure, like protection limits for OFS users, is regulated by standards independent of the PCS rules, no potential for increased exposure will arise.²⁰

Telocator believes an increase in the permitted base station power limits to 1,000 Watts ERP is warranted and in the public interest. As a number of parties have noted, the derivation of the existing limitation was nowhere explained.²¹ Time-Warner, and others, have hypothesized that the limits could be the result of the FCC's observation that "most PCS experimental systems could be accommodated within these parameters."²² However, PCS experiments "should not be the primary standard from which permanent technical rules are established."²³ As the Commission itself has noted, "many PCS concepts are at a nascent stage and establishing restrictions or limits may impede the development of certain offerings."²⁴

¹⁸ *Telocator Petition* at 2-7; *APC Petition* at 3-8; *Northern Telecom Petition* at 17-21; *PacBell Petition* at 3-4; *PacTel Petition* at 6-7; *Sprint Petition* at 15.

¹⁹ *PacTel Petition* at 7.

²⁰ *Telocator Petition* at 2-7; *APC Petition* at 3-8; *Northern Telecom Petition* at 17-21; *PacTel Petition* at 6-7.

²¹ *U S West Petition* at 4-6.

²² *Time Warner Petition* at 12; *U S West Petition* at 5.

²³ *Time Warner Petition* at 5.

²⁴ *Second Report and Order* at ¶ 156.

Telocator also believes, for many of the same reasons, that mobile power limits should be raised for certain classes of PCS units.²⁵ While the low power limit adopted by the Commission may be appropriate for handheld units based on ANSI/IEEE exposure standards, the same rationale may not be applicable to vehicle mounted or other types of nonhand-held PCS transmitters. Allowing greater transmit power for the latter units could facilitate the offering of a number of new and innovative services and equipment. Accordingly, as detailed in its petition, Telocator believes that the power limits for certain PCS mobiles should be raised to 12 Watts ERP.

B. The Commission Should Adopt the Proposal To Allow Licensees' To "Sublet" Spectrum from Other Licensees

In its Petition for Reconsideration, PCS Action has argued that the 30 MHz PCS licensees should be permitted to "sublet" spectrum from the 20 MHz licensee. A number of other parties have similarly supported clarifications that would ensure PCS licensees' ability to subdivide authorized spectrum or market areas to be licensed to other entities.²⁶ These recommendations are consistent with Telocator's support for measures to allow market-driven

²⁵ *Telocator Petition* at 2-7; *MCI Petition* at 8-10.

²⁶ *See, e.g.*, Petition for Reconsideration of Alliance of Rural Area Telephone and Cellular Service Providers at 2, GEN Docket 90-314 (filed Dec. 8, 1993); Petition of McCaw Cellular Communications, Inc. at 6-8, GEN Docket 90-314 (filed Dec. 8, 1993); Petition for Reconsideration of National Telephone Cooperative Association at 6, GEN Docket 90-314 (filed Dec. 8, 1993); Petition for Reconsideration of PCS Action at 10, GEN Docket 90-314 (filed Dec. 8, 1993); Petition for Reconsideration of Rural Cellular Association at 7, GEN Docket 90-314 (filed Dec. 8, 1993); *Time Warner Petition* at 10-11; Petition for Reconsideration of U.S. Intelco Networks at 7-8, GEN Docket 90-314 (filed Dec. 8, 1993).

combinations and divisions of PCS spectrum, both in frequency and geographically, in the ongoing competitive bidding proceeding.²⁷

Telocator endorses these proposals and the rules should be clarified to provide that any PCS licensee is permitted to negotiate agreements with other PCS licensees for additional spectrum. Increasing carriers' ability to respond to market forces in structuring PCS offerings provides further flexibility in the use of spectrum and could allow needed accommodations simplifying the provision of PCS during the initial deployment phase where numerous OFS licensees are still present. Accordingly, Telocator urges the Commission to adopt proposals to permit "subleasing" of any spectrum.

C. The Out-of-Band Emissions Criteria Should Be Extended To Govern PCS Adjacent Channel Interference

Telocator's suggestion that it would be appropriate to apply the existing PCS-microwave emissions mask to PCS-PCS interference was also reiterated by a number of other petitioners.²⁸ As Motorola noted, "[t]raditionally, the Commission requires a certain emission mask to ensure some level of protection between licensees on adjacent channels."²⁹ In the PCS allocation, however, the Commission has elected not to apply any technical criteria to govern adjacent channel interference between two PCS operators. Rather, the

²⁷ Telocator also assumes that the Commission will not adopt an ill-advised and questionable designated entity set-aside. See Comments of Telocator, GN 93-253 (filed Nov. 10, 1993).

²⁸ *Telocator Petition* at 2-7; Petition for Reconsideration of Ericsson Corporation at 4-5, GEN Docket No. 90-314 (filed Dec. 8, 1993); *Motorola Petition* at 9-10.

²⁹ *Motorola Petition* at 9.

acceptable level of adjacent channel interference will be the subject of negotiation between two PCS licensees.

Telocator, and others, believe that failure to provide specific, ascertainable controls on adjacent channel emissions will greatly increase the potential for controversy and litigation between PCS licensees. Such conflicts are also likely to delay the advent of service or degrade the quality of service over broad areas because adjacent channel interference will affect any area of service overlap between the two providers. Since, in this case, an emission mask already exists to ensure non-interference with microwave systems that are adjacent to PCS operators, extension of the requirement to PCS-PCS interference is a simple and sound step.

D. The PCS-Microwave Interference Criteria Should Be Modified To Allow Greater Flexibility To Implement Industry-Derived Consensus Solutions

Although the majority of petitioners, like Telocator, agreed that the Commission's rules governing PCS-microwave interference were properly based on TSB10 criteria, the rules "need[] fine-tuning so that the 'nascent' and fluid PCS industry can evolve and the well-established, effective fixed microwave industry can continue serving public safety, utility and commercial needs without undue disruption."³⁰ In particular, a broad range of petitioners have agreed with Telocator that:

³⁰ Petition for Reconsideration of Telecommunications Industry Association--Microwave Fixed Point-to-Point Communication Section Network Equipment Division at 3, GEN Docket No. 90-314 (filed Dec. 8, 1993) ["TIA-FPP"].

- Future revisions of TSB10 should be accommodated under the rules;³¹
- The propagation model for evaluating PCS-microwave interference should not be limited strictly to Longley-Rice if the industry can agree in ongoing discussions as to the utility of other models;³² and,
- Industry consensus changes to the propagation calculations shown in Appendix D should be permitted.³³

As Telocator and others have noted, these changes will better ensure meeting the twin goals of rapid PCS deployment while ensuring the reliability of existing microwave systems and are supported by "a broad consensus of existing or potential PCS *and* microwave users and equipment manufacturers."³⁴

E. The PCS License Areas Should Be Restated In Terms of Counties Rather Than Relying Upon a Proprietary Map System

Due to the emerging conflict over proprietary rights coincident with the use of Major Trading Area and Basic Trading Area maps, Telocator petitioned the Commission to discontinue reliance on license areas explicitly based on the Rand-McNally divisions. Several petitioners, including Telocator, have suggested that the Commission could accomplish the same result reached in the *Second Report and Order*, without the threat of litigation over property rights, if the Commission simply restated the license areas as

³¹ *Telocator Petition* at 9-10; *Petition for Reconsideration of Alcatel Network Systems, Inc.* at 4-7, GEN Docket No. 90-314 (filed Dec. 8, 1993) [*"Alcatel Petition"*]; *Petition for Reconsideration of American Petroleum Institute* at 3-6, GEN Docket No. 90-314 (filed Dec. 8, 1993); *TIA-FPP Petition* at 2, 9.

³² *Telocator Petition* at 9-10; *Alcatel Petition* at 4-6; *Motorola Petition* at 6-7; *TIA-FPP Petition*.

³³ *See TIA-FPP Petition* at 10-11, Appendix A; *see also Telocator Petition* at 9-10; *Alcatel Petition* at 7; *APC Petition* at 10-11; *Ameritech Petition* at 2-3.

³⁴ *TIAFPP Petition* at 6 (emphasis in original).

Telocator has petitioned.³⁵ While Rand McNally may be entitled to assert property rights over its maps, as petitioners have argued, it cannot assert a legal claim to "owning" the idea of a particular collection of counties.³⁶ Under the circumstances, the Commission should act on reconsideration to eliminate references to "Rand McNally," "Basic Trading Areas," and "Major Trading Areas," and instead define license areas solely in terms of established county boundaries.

F. The Application Filing Rules Should Be Clarified

Telocator also believes that two application issues warrant the Commission's attention on reconsideration. First, Telocator has suggested a new method of electronic application filing that would eliminate unnecessary paperwork by licensees, facilitate access to information by the Commission, and reduce the processing costs for both.³⁷ Under Telocator's proposal, PCS licensees would file site-specific information electronically with a Commission approved contractor. The contractor would then ensure that the information is indexed and accessible to Commission personnel, PCS licensees, and, importantly, OFS microwave users. As Telocator's petition discusses, the availability of this information is critical to ensuring the success of PCS through more accurate interference prediction.

³⁵ *Telocator Petition* at 16; *Petition for Reconsideration of Killen & Associates, Inc.* at 1-3, GEN Docket No. 90-314 (filed Dec. 8, 1993); *Petition for Reconsideration of Point Communications Company* at 4, GEN Docket No. 90-314 (filed Dec. 8, 1993).

³⁶ *See, e.g., BellSouth Advertising & Publishing Corp. v. Donnelley Information Publishing, Inc.*, 999 F.2d 1436, 1441 (11th Cir. 1993); *Kern River Gas Transmission Co. v. Coastal Corp.*, 899 F.2d 1458, 1464 (5th Cir. 1990); *Matthew Bender & Co. v. Kluwer Law Book Publishers*, 672 F.Supp. 107 (S.D.N.Y. 1987).

³⁷ *Telocator Petition* at 14-15; *APC Petition* at i.

Accordingly, the Commission should designate certain of its staff to work with Telocator's *Ad Hoc* Electronic Filing Committee to pursue implementation of this suggestion.

Second, Telocator and others have noted that the application requirement to ensure ± 5 meter accuracy in the horizontal plane is highly problematic.³⁸ For technical reasons documented in Telocator's petition, ensuring accuracy to more than ± 1 second is technically difficult, time consuming, and exceedingly expensive. Since, as APC notes, this requirement "imposes a unique and significant burden on PCS licensees without any apparent benefit to the Commission, the public or the industry," the requirement should be eliminated and PCS licensees should be permitted to specify accuracy only to ± 1 second in any filings.

G. The Applicability of the Uncontrolled Environment Distinction for RF Exposure Evaluations Should Be Clarified

The applicability of the uncontrolled environment distinction in the RF exposure rules should be clarified for PCS operators.³⁹ As discussed in its Petition, there is a clear discrepancy between the text of the *Second Report and Order* and the rules in Part 99. Although the text makes clear that only PCS handsets are deemed automatically to operate in an "uncontrolled" environment for purposes of evaluating RF exposure under the ANSI/IEEE criteria, the rule appears to extend this determination to *all* PCS transmitters, including base stations and other types of mobiles. Because the Commission's stated rationale for imposing such an "automatic" environmental determination on handsets, *i.e.*, the proximity of the transmitting element to the head, does not apply to other types of PCS transmitters,

³⁸ *Telocator Petition* at 15; *APC Petition* at 10.

³⁹ *Telocator Petition* at 18-19.

Telocator's proposed revision of the rule to read in accordance with the text of the *Second Report and Order* should be adopted on reconsideration.

H. The "Listening" Period and Frame Time In the Unlicensed Device "Listen-Before-Talk" Protocol Should Be Increased

Telocator's petition also requested reconsideration of the "listening" period and associated frame time for unlicensed PCS devices. Under the existing rules, this limit is specified as 10 ms, which Rockwell has also noted is inconsistent with certain types of new technology.⁴⁰ Because extending the period and frame time in the "listen-before-talk" rules from 10 ms to 20 ms will accommodate a greater range of new technologies in the unlicensed device band without perceivably affecting end-user response times, Telocator believes the suggested change should be adopted.

II. REQUESTED CHANGES LIMITING THE POTENTIAL FOR INDUSTRY-DERIVED SOLUTIONS SHOULD NOT BE ADOPTED

A. The FCC Should Reject Proposals To Dedicate PCS Spectrum for Private Uses Only

Telocator opposes the suggestion by both the Utilities Telecommunication Council ("UTC") and the Association of Public Communications Safety Officers ("APCO") to create dedicated PCS set-asides solely for private uses. While Telocator has supported allowing licensees to provide both private and commercial mobile services on PCS spectrum, Telocator is opposed to any inflexible set-aside provisions. To the extent that dedicating

⁴⁰ Telocator Petition at 20; Petition for Reconsideration of Rockwell International Corporation at 5-6, GEN Docket No. 90-314 (filed Dec. 8, 1993).

spectrum for particular private uses is warranted, private users can obtain the spectrum on the same terms and conditions as any other spectrum user through competitive bidding or by negotiating with individual licensees. Indeed, for precisely these reasons, the Commission previously rejected the same, or similar, requests during the rulemaking phase of this docket.⁴¹ Under the circumstances, neither APCO nor UTC has stated a case for deviating from the allocation plan adopted in the PCS rulemaking.

B. E-911 Issues Should Be Left to the Industry for Resolution In Conjunction With the States

Recognizing that E-911 access is voluntarily provided by cellular carriers nationwide to local 911 service providers, Telocator expects that E-911 access issues relating to PCS will be relatively uncontentious. However, Telocator believes the suggestion that caller location information be mandated by the FCC implicates significant technical, cost, privacy and civil rights issues that would be better resolved through cooperative working groups involving both 911 service providers and new PCS entrants.⁴² Importantly, this process has already begun.

Telocator, in fact, recently met with representatives of APCO and the National Emergency Number Association ("NENA") to discuss the provision of E-911 service. The discussion included such issues as the ability to dial 911 without restriction on a PCS terminal, call control or "call back" capability, proper Public Safety Answering Point

⁴¹ See generally Implementation of Sections 3(n) and 332 of the Communications Act at ¶¶ 44-45, FCC 93-454 (rel. Oct. 8, 1993).

⁴² Petition for Reconsideration of the Texas Advisory Commission on Emergency Communications, GEN Docket No. 90-314 (filed Dec. 8, 1993) (as supplemented).

("PSAP") routing, hearing impaired and TDD access, as well as caller information. It should be noted that the APCO and NENA representatives gave caller location information a lower priority for availability than all other issues discussed with the exception of TDD access. Telocator has agreed to work with APCO and NENA representatives on this broad range of technical and consumer issues regarding access to emergency service providers and is pleased that the PCS industry and the emergency service providers agreed to jointly address these issues. These efforts represent an unprecedented level of voluntary cooperation between the wireless industry and 911 service providers. In light of cooperative initiatives to resolve the identified problems without government intervention, Telocator believes an FCC mandate for provision of E-911 services is premature, unwarranted, and could, in fact, prove to be counterproductive.

III. CONCLUSION

Telocator strongly supports the Commission's basic spectrum allocation and regulatory regime adopted in the *Second Report and Order*. Nonetheless, Telocator believes that the Commission could substantially advance the utility and economic viability of PCS systems if a few, limited changes were made on reconsideration. In particular, the Commission should:

- Raise the PCS base station power limit to 1,000 Watts ERP and the mobile power limit to 12 Watts ERP for some units;
- Clarify that licensees are able to freely subdivide and aggregate spectrum, up to the spectrum cap;
- Revise the emissions limits to cover both PCS to microwave and adjacent channel PCS interference;

- Adopt certain industry consensus revisions to the PCS to microwave interference calculations;
- Restate the license area divisions independent of map systems that may carry proprietary complications;
- Clarify certain aspects of the application filing rules; and,
- Revise the RF exposure regulations for PCS to be consistent with the text of the *Second Report and Order*.

The Commission should not, however, adopt changes suggested by some parties that would fundamentally alter the basic spectrum allocations by creating set-asides for any purpose or preempt ongoing industry discussions relating to E-911 services.

Respectfully submitted,

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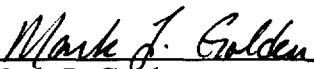
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